

For discussion
on 1 June 2011

PWSC(2011-12)11

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT

Medical Subventions

8MA – Redevelopment of Caritas Medical Centre, phase 2

Members are invited to recommend to Finance Committee to increase the approved project estimate of **8MA** by \$501.5 million from \$1,218.1 million to \$1,719.6 million in money-of-the-day prices for the main works of the redevelopment of Caritas Medical Centre, phase 2.

PROBLEM

The approved project estimate (APE) of **8MA** is not sufficient to cover the cost of the approved works.

PROPOSAL

2. The Secretary for Food and Health proposes to increase the APE of **8MA** by \$501.5 million from \$1,218.1 million to \$1,719.6 million in money-of-the-day (MOD) prices for the redevelopment of Caritas Medical Centre (CMC), phase 2.

/PROJECT

PROJECT SCOPE AND NATURE

3. The approved scope of works under **8MA** comprises –
- (a) demolition of the existing Wai Ming Block for the construction of a new ambulatory/rehabilitation block on the same site, to accommodate 260 convalescent/rehabilitation beds, ambulatory care and clinical support facilities;
 - (b) site formation and excavation;
 - (c) piling works;
 - (d) refurbishment of Jockey Club Wai Oi Block to accommodate tele-health service, nurse specialist office, community nursing office, maintenance department, central domestic services, security and transport services, a training and conference centre, a library, Red Cross School and staff changing facilities reprovioned from Wai Ming Block, Wai On Block and Wai Yan Block;
 - (e) construction of two link bridges connecting Wai Shun Block with the new ambulatory/rehabilitation block and Wai Oi Block respectively and a walkway linking Wai Yee Block and Wai Shun Block;
 - (f) demolition of Wai On Block, Wai Tak Block and Wai Yan Block for the construction of a rehabilitation garden, external landscaping, and improvement works of access road and hospital entrances; and
 - (g) consultancy services for contract administration and site supervision of the main works.

———— The site plans showing the existing layout of CMC and the proposed layout after redevelopment are at Enclosures 1 and 2 respectively.

/JUSTIFICATION

JUSTIFICATION

4. On 11 May 2007, the Finance Committee (FC) approved the upgrading of **8MA** to Category A at an estimated cost of \$1,218.1 million in MOD prices. The Hospital Authority (HA) invited tenders for the works contract in July 2007 but cancelled the tender exercise in November 2007 because the prices of the returned tenders were significantly higher than the APE¹. HA then initiated the following actions –

- (a) conducted a review and concluded that the higher-than-expected tender outturn price was attributable to the following factors –
 - (i) rapid price inflation under a booming construction industry in 2007;
 - (ii) marking-up of tender price by bidders to provide safety cushions against the risks of a long construction period from late 2007 to 2012; and
 - (iii) inadequate allowance in project cost estimation by HA's consultants to fully reflect market situations.
- (b) conducted a design review exercise involving extensive consultation with hospital end-users to enhance the efficiency in the use of space within the approved project scope. Opportunity has also been taken to fine-tune the design taking into account the latest operational and environmental considerations (such as the provision of a washroom in each ward cubicle as an enhanced infection control measure). Through this design review exercise, the construction floor area of the new ambulatory/rehabilitation block has been reduced by 4 600 square metres (m²) from around 59 100 m² to 54 500 m² and the number of storeys from 15 to 12, resulting in a more compact building form. The sectional plan and the artist impression of the new ambulatory/rehabilitation block are at Enclosures 3 and 4 respectively.

/(c)

¹ The actual tender prices of all the five conforming tenders were significantly higher than the original estimate for the works contract by between \$508 million and \$600 million (48%-56% of the original estimate for the works contract).

- (c) explored an alternative procurement strategy by implementing the project through several smaller contracts in lieu of one single contract, and concluded that such an approach could increase the competitiveness of the tenders; minimize the likelihood of tenderers pricing in additional risk premium for extensive contract periods; and allow for participation of more small and medium-sized contractors. Accordingly, HA had split up the original single works contract into the following three works packages –
- (i) Works Package I : Foundation contract which covers the demolition of Wai Ming Block, site formation works and substructure/piling works for the new ambulatory/rehabilitation block, and also the construction of a new lift tower;
 - (ii) Works Package II : Main Building Works contract for the construction of the new ambulatory/rehabilitation block and two link bridges connecting Wai Shun Block with the ambulatory/rehabilitation block and Wai Oi Block respectively; and
 - (iii) Works Package III : Remaining Works contract for the demolition of Wai On Block, Wai Tak Block and Wai Yan Block, the provision of the rehabilitation garden, external landscaping, the walkway linking Wai Yee Block and Wai Shun Block, and improvement works of access road and hospital entrances.

Latest Progress

5. We briefed the Legislative Council Panel on Health Services (the Panel) on 20 April 2009 regarding the status of the project as well as the revised design and alternative procurement strategy to be adopted. The Panel noted that the works under **8MA** would be re-tendered under the alternative procurement strategy. HA subsequently started the works under Package I in June 2009. The latest progress of Works Package I is as follows –

/(a)

- (a) the construction of a new lift tower to facilitate access of patients, staff and visitors from Wing Hong Street to the hospital compound was completed in April 2010 before demolition of Wai Ming Block. This is to enable the continued provision of access as the passenger lifts in Wai Ming Block used to provide such access;
- (b) the demolition of Wai Ming Block is ongoing. The removal of asbestos-containing materials in the building takes longer than expected. The safe removal of these materials have entailed a statutory process of submissions and approvals of works details, as well as other precautionary measures such as pre-abatement review meetings and inspections; phased containment set-ups and smoke tests; and supervision by registered asbestos consultant. All asbestos-containing materials have been removed and the demolition works are expected to complete by the end of May 2011;
- (c) the site formation works for the construction of bored pile walls and installation of rock anchors for the ambulatory/rehabilitation block, which serve to ensure stability of the terrain on which CMC stands, are expected to complete in end May 2011. The above works have taken more time than expected due to unforeseen ground conditions, with the actual rock levels at various locations found to be much lower than those deduced from site investigation findings, necessitating deeper piling; and
- (d) the foundation works for the new ambulatory/rehabilitation block will commence in end May 2011 after completion of (b) and (c) above and is expected to complete in October/November 2011.

6. For Works Package II (i.e. for the construction of new ambulatory/rehabilitation block), HA invited tenders in January 2011. Subject to funding approval, HA will award the contract so that the works can start immediately upon completion of Works Package I in October/November 2011. The current target is to complete the new ambulatory/rehabilitation block by September 2013. HA plans to complete Works Package III (i.e. provision of a rehabilitation garden and remaining works) in around mid-2014.

/7.

7. Based on the contract value of Works Package I, the returned tender price for Works Package II and the cost estimates for Works Package III, we estimate the total project cost of **8MA** to be \$1,769.6 million in MOD prices. This exceeds the original project cost estimate of \$1,268.1 million in MOD prices by \$501.5 million. The increase in the estimated project cost is mainly due to the following reasons –

- (a) increase in construction costs resulting from price increase of major construction materials since mid-2007, and minor changes to the external works; and
- (b) increase in provision of price adjustment.

Increase in construction costs

8. As reflected in the construction cost indices published by the Census and Statistics Department, the cost for steel reinforcement, galvanized mild steel and sand as at January 2011 has risen by 84%, 38% and 98% respectively from the September 2006 prices adopted for the APE. A chart showing the relevant trend of material cost increases is at Enclosure 5. The rise in the cost of the above-mentioned raw materials, being the major elements of construction works, has driven up the tender price significantly. Furthermore, the tender price index for government building works² compiled by the Architectural Services Department appended at Enclosure 6 indicates that the average tender prices have risen by about 69% from the third quarter in 2006 to the fourth quarter in 2010. After the adoption of the alternative procurement strategy as stated in paragraph 4(c) above, the total increase in construction costs due to price increases of major construction materials is estimated to be \$358.5 million.

9. It is also necessary to carry out additional external works under Works Package III to meet the operational needs and requirements imposed by the relevant authorities. Such works include re-provisioning of the existing hot water supply pipework affected by the project, provision of external U-trough for maintenance of water mains, demolition and re-provisioning of entrance portal, and slope improvement works. These additional works have not been allowed for in the original budget, and are estimated to be \$10 million.

/Increase

² The tender price index is a quarterly index compiled by the Architectural Services Department based on data from accepted tenders.

Increase in provision of price adjustment

10. Increase in provision of price adjustment is required as a result of the increase in the APE. Also, taking into account Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output, we consider that there is a need to allow an additional cost of \$136.1 million to cater for price adjustment.

Offset by savings under the project

11. The increase in cost due to reasons explained in paragraphs 8 to 10 above is partly offset by the savings from decanting works of \$3.1 million due to reduced extent of decanting arrangements for meeting operational requirements of CMC.

Reduction in costs brought by the alternative procurement strategy

12. The alternative procurement strategy, which divides the project into smaller contracts, has increased the competitiveness of the tenders and minimised the likelihood of tenderers building in additional premium for extensive contract periods. Of the 12 returned tenders for Works Package II, the tender price of ten tenders was below the pre-tender estimate prepared by HA's consultants³.

Review of financial position

13. Caritas Hong Kong, the parent organization of CMC, has undertaken to contribute \$50 million in MOD prices over eight years towards the total project cost of \$1,769.6 million in MOD prices. Upon a review of the financial position of the project taking into account the \$50 million contributions in MOD prices, HA, in consultation with the Director of Architectural Services, considers it necessary to increase the APE of **8MA** from \$1,218.1 million by \$501.5 million to \$1,719.6 million in MOD prices to cover the additional cost under the project. A breakdown of the proposed increase of \$501.5 million is as follows –

/Factors

³ When we briefed the Panel on the alternative procurement strategy in 20 April 2009, the revised project estimate at the time was \$1,789.4 million in MOD prices, which is higher than the current project estimate of \$1,769.6 million in MOD prices.

Factors	Proposed increased amount/savings in MOD prices (\$ million)	% of the total increased amount/savings %
Increase due to –		
(a) increase in construction costs	358.5	71
(b) additional external works	10.0	2
(c) higher provision for price adjustment	136.1	27
(d) Total increase (d = a+b+c)	<u>504.6</u>	<u>100</u>
Partly offset by –		
(e) savings from decanting works	<u>3.1</u>	<u>100</u>
(f) Proposed increase (f = d-e)	501.5	

———— The cash flow and provision for price adjustments of the project are given in
 ———— Enclosure 7 whereas a comparison of the cost breakdown of the original and the
 revised project cost estimate is at Enclosure 8.

14. With the return of tender for the Works Package II, the majority of the construction cost (i.e. 92%) covered by the revised project cost estimate has been ascertained. Hence, we are reasonably certain that the proposed revised APE will be sufficient to cover all necessary costs under the project.

FINANCIAL IMPLICATIONS

15. Subject to funding approval, HA will phase the expenditure as follows –

/Year

Year	\$ million (MOD)	Total construction cost
	Funded under 8MA	
Up to 31 March 2011 ⁴	147.1	159.6
2011 – 2012	188.5	194.7
2012 – 2013	809.6	815.7
2013 – 2014	478.9	485.1
2014 – 2015	56.0	62.2
2015 – 2016	35.3	41.5
2016 – 2017	4.2	10.8
Total	1,719.6	1,769.6

16. The proposed increase in the APE will not give rise to any additional recurrent expenditure.

PUBLIC CONSULTATION

17. HA consulted the Sham Shui Po District Council (SSPDC) on 17 October 2006 on the proposed project. Members of the SSPDC supported the proposed project. HA reported the progress of this project to SSPDC on 31 May 2007, 17 September 2008, 25 June 2009 and 29 June 2010. Members of SSPDC were also briefed about the project during their visit to CMC on 4 June 2010.

/18.

⁴

This is actual expenditure up to 31 March 2011.

18. We first consulted the Panel on 8 January 2007. Members of the Panel supported the proposed project. We reported to the Panel on the status of the project on 20 April 2009. Members noted the revised design and alternative procurement strategy and commented that we should expedite the implementation of the project to meet service demand in the long run. We updated the Panel on the latest financial position and progress of the project on 9 May 2011. Members of the Panel supported the proposed increase in the APE.

ENVIRONMENTAL IMPLICATIONS

19. The proposed increase in the APE will not have any environmental implication.

ENERGY CONSERVATION MEASURES

20. This project has adopted various forms of energy efficient features, including –

- (a) water cooled chillers with fresh water evaporative cooling towers;
- (b) automatic demand control of chilled water circulation system;
- (c) automatic demand control of supply air;
- (d) demand control of fresh air supply with carbon dioxide sensors;
- (e) automatic demand control for ventilation fans in car parks;
- (f) heat pipe heat exchanger for heat energy reclaim of exhaust air;
- (g) automatic condenser tube cleaning equipment;
- (h) T5 energy efficient fluorescent tubes and compact fluorescent tubes with electronic ballast and lighting control by occupancy sensors and daylight sensors;

/(i)

- (i) light-emitting diode (LED) type exit signs;
- (j) heat pumps for domestic hot water, space heating and dehumidification;
- (k) automatic on/off switching of lighting and ventilation fan inside lifts; and
- (l) building energy management system for large installations.

21. For renewable energy technologies, HA will adopt solar lightings, building-integrated photovoltaic (BIPV) system and solar hot water heating system.

22. For greening features, HA will adopt greening on the rooftops and the link bridges.

23. For recycled features, HA will adopt rainwater and condensate water recycling system for landscape irrigation.

24. The total estimated cost for adoption of the above features is around \$14.2 million (including \$8.9 million for energy efficient features), which has been included in the cost estimate of the project. The energy efficient features will achieve 12.0% energy savings in the annual energy consumption with a payback period at about 3.8 years.

HERITAGE IMPLICATIONS

25. The proposed increase in the APE will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

26. The proposed increase in the APE does not require any land acquisition.

/BACKGROUND

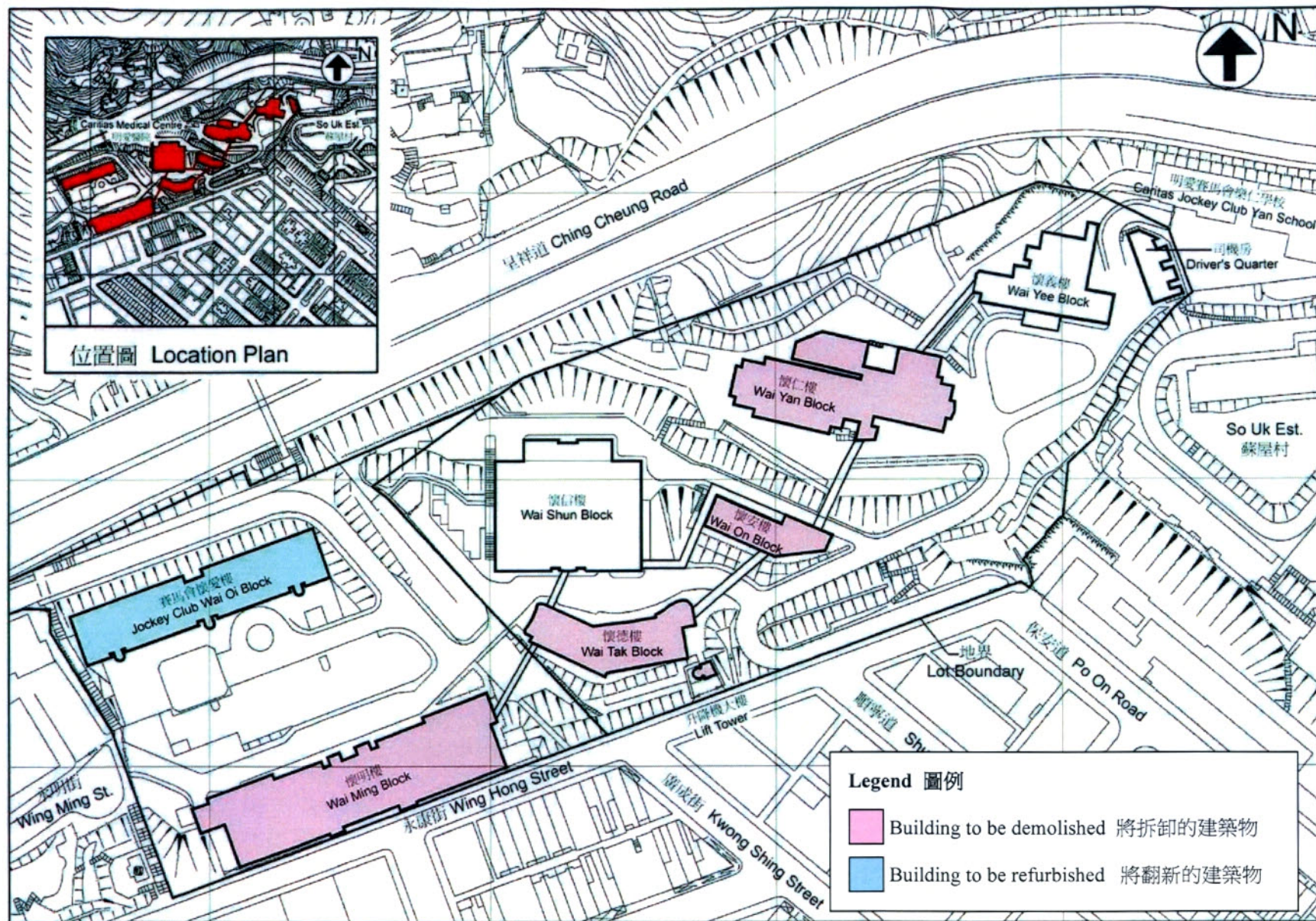
BACKGROUND INFORMATION

27. In May 2007, FC approved the upgrading of **8MA** to Category A at an estimated cost of \$1,218.1 million in MOD prices.

28. The proposed increase in the APE will not involve any additional tree removal or planting proposal.

29. The proposed increase in the APE will not create any new jobs.

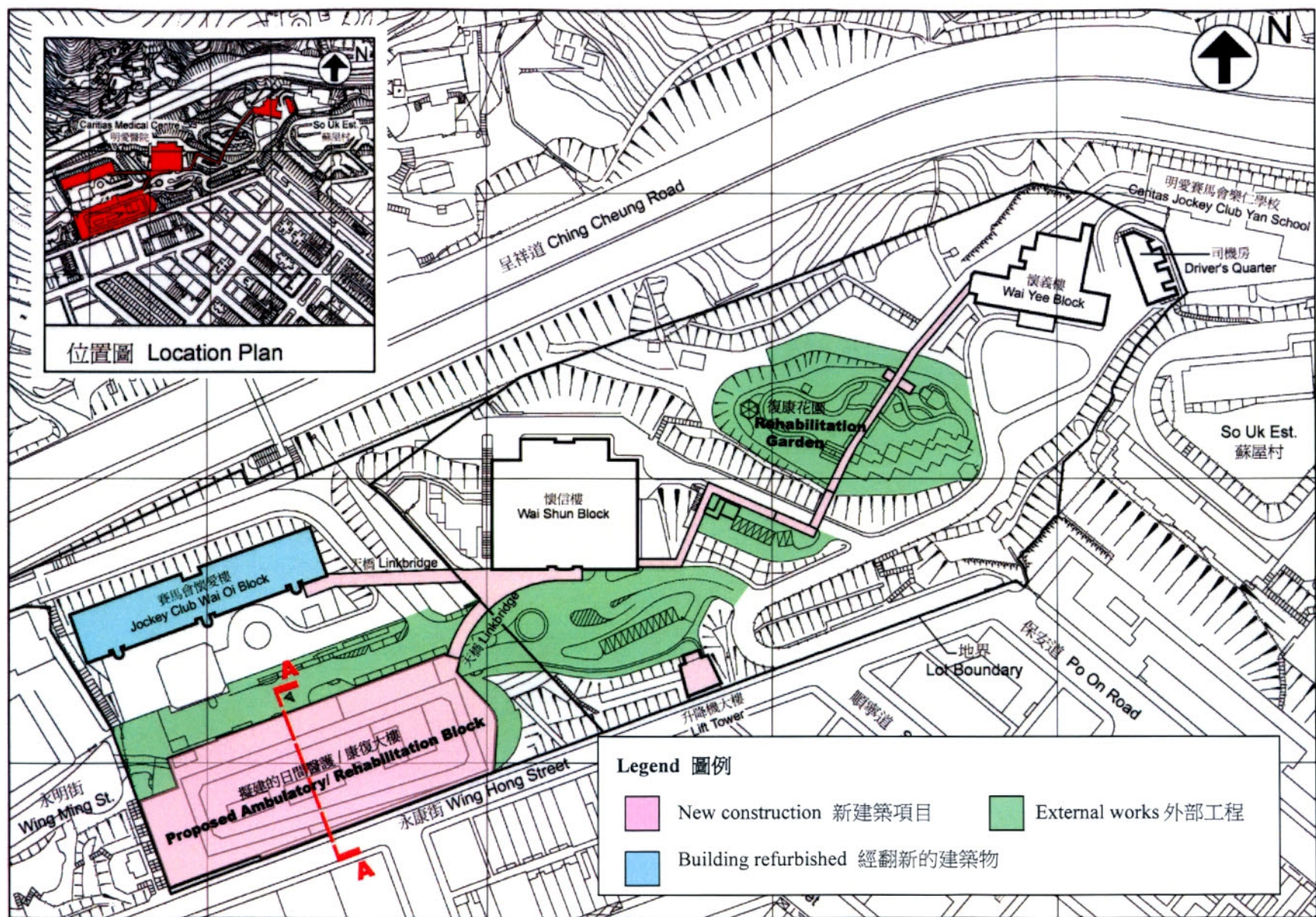
Food and Health Bureau
May 2011



Site Plan of Existing Caritas Medical Centre (Not To Scale)

明愛醫院現時平面圖 (不按比例)

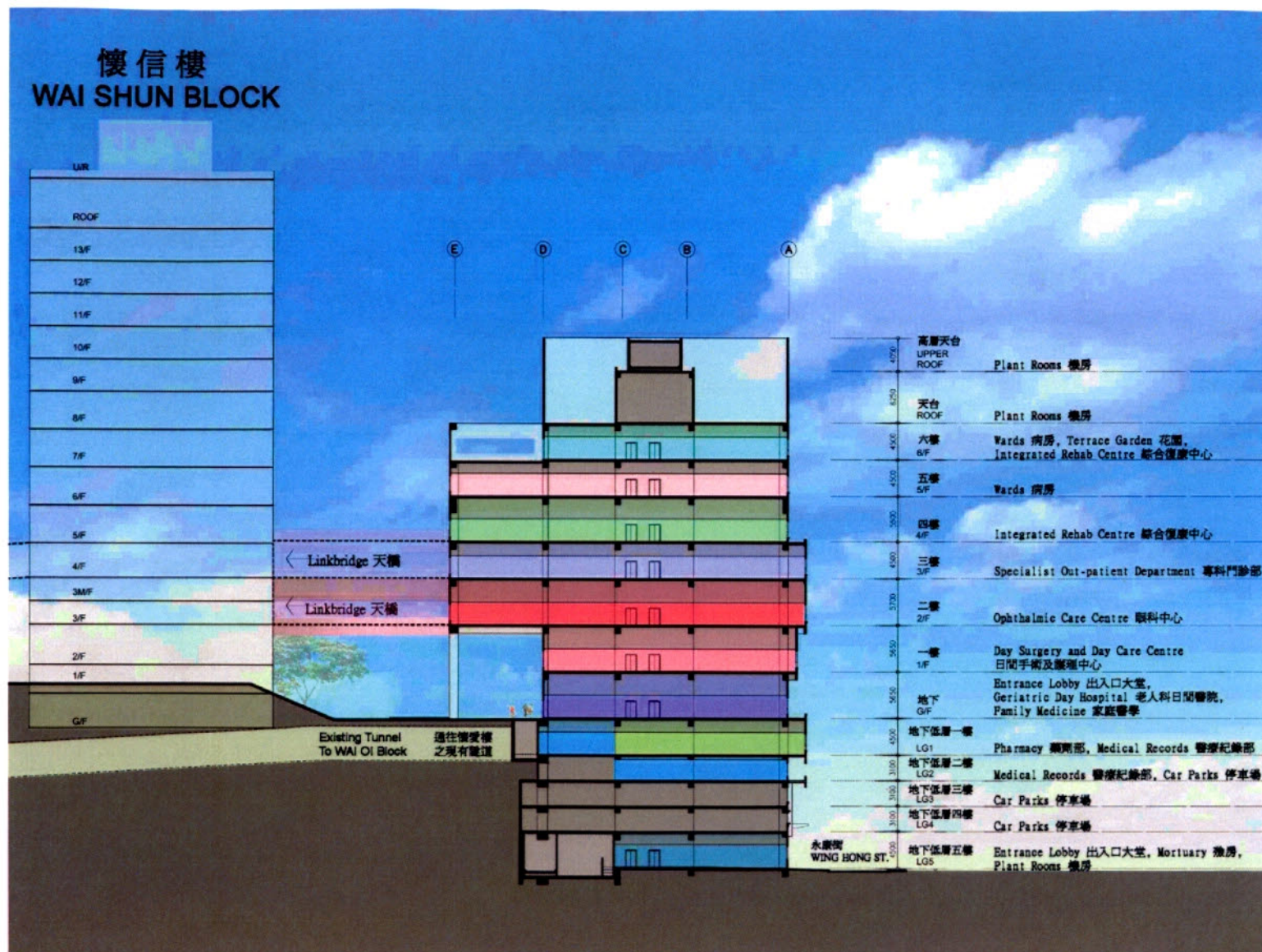
8008MA - Redevelopment of Caritas Medical Centre, phase 2 明愛醫院第二期重建計劃



Site Plan of Caritas Medical Centre upon completion of Phase 2 Redevelopment (Not To Scale)

明愛醫院第二期重建後平面圖 (不按比例)

8008MA - Redevelopment of Caritas Medical Centre, phase 2 明愛醫院第二期重建計劃



Section A-A of Proposed Ambulatory / Rehabilitation Block (Not To Scale)
擬建的日間醫護 / 康復大樓 剖面圖 A-A (不按比例)



Proposed Ambulatory / Rehabilitation Block 擬建的日間醫護 / 康復大樓
Perspective View from Wing Hong Street (Artist's Impression) 永康街外觀構思圖

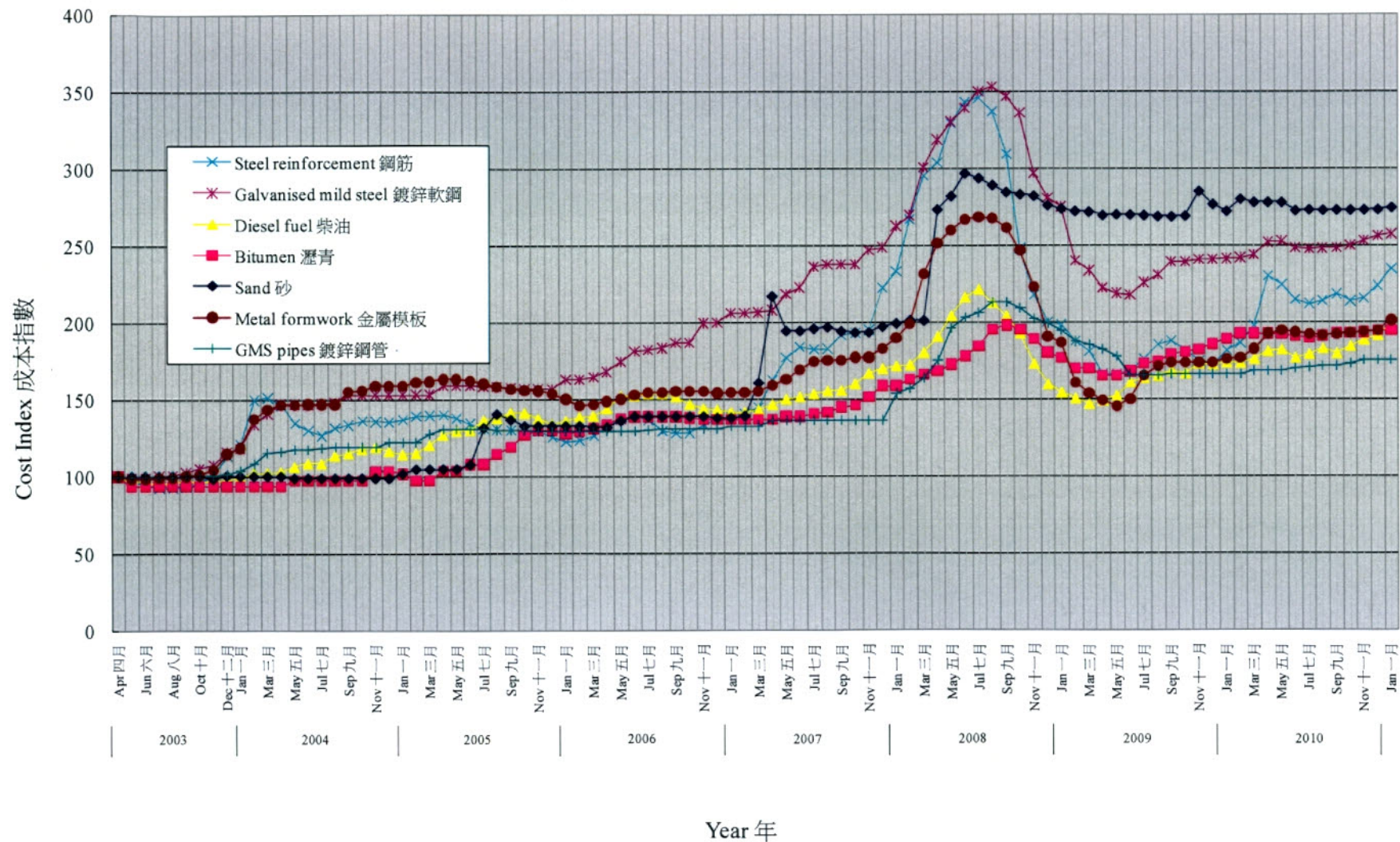
8008MA - Redevelopment of Caritas Medical Centre, phase 2 明愛醫院第二期重建計劃

Index Numbers of Costs of Materials used in Public Sector Construction Projects (Apr 2003=100)

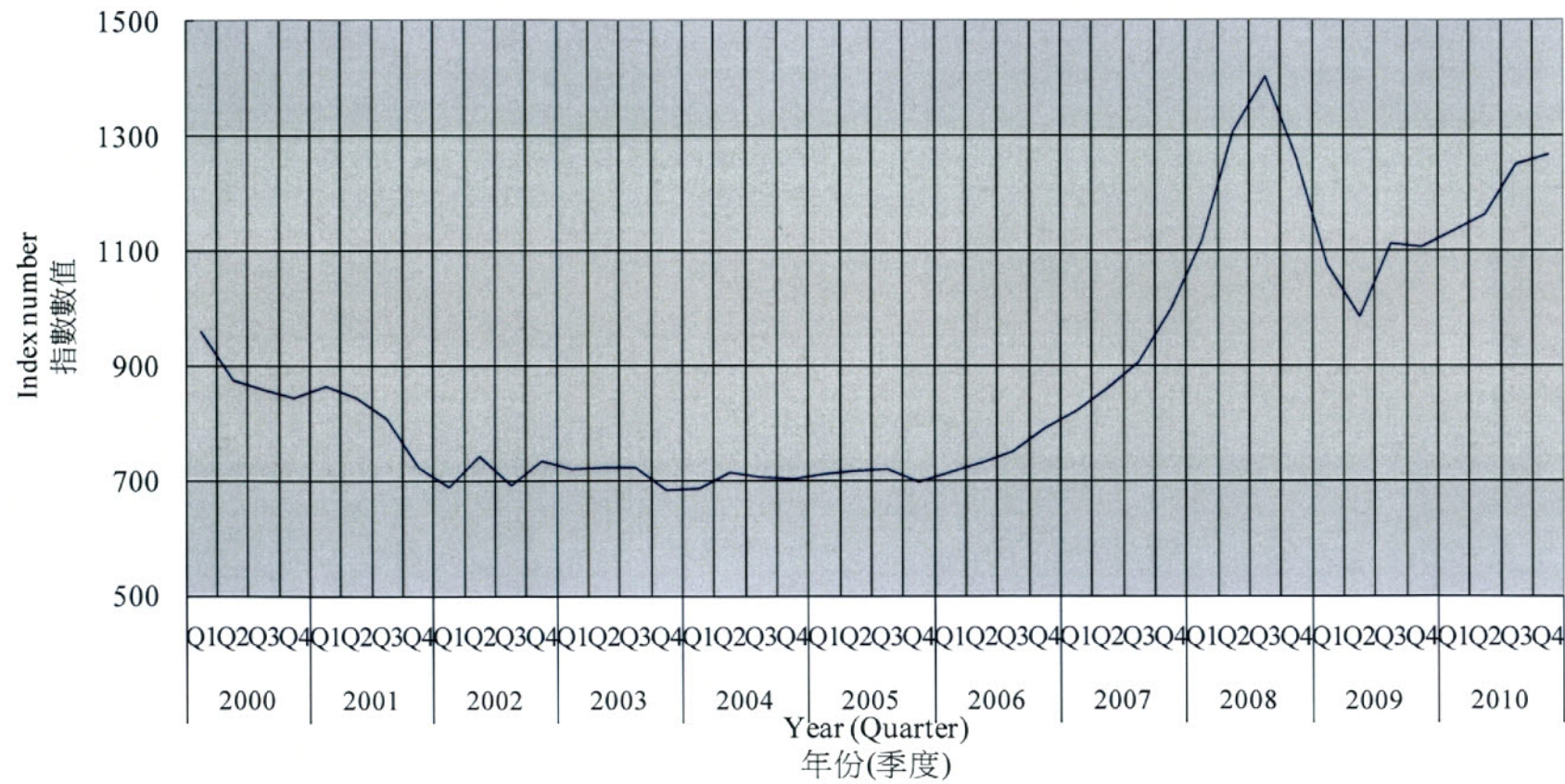
(Apr 2003 - Jan 2011)

公營建築工程的材料成本指數(2003年4月=100)

(2003年4月至2011年1月)



Architectural Services Department's Building Works Tender Price Index
 建築工程投標價格指數



8MA – Redevelopment of Caritas Medical Centre, phase 2

Table 1 – Cash flow and provision for price adjustment for the project in PWSC(2007-08)9

Year	Original project cost estimate (\$ million in September 2006 prices)	Original price adjustment factors†	Original project cost estimate Ω (\$ million in MOD prices)	Provision for price adjustment (\$ million)
	X	Y	Z	A = Z - X
2007 – 2008	34.6	0.99900	34.6	-
2008 – 2009	66.0	1.00649	66.4	0.4
2009 – 2010	116.0	1.01656	117.9	1.9
2010 – 2011	475.7	1.02672	488.4	12.7
2011 – 2012	398.8	1.03699	413.6	14.8
2012 – 2013	102.1	1.05514	107.7	5.6
2013 – 2014	16.5	1.07624	17.8	1.3
2014 – 2015	12.8	1.09777	14.1	1.3
2015 – 2016	6.8	1.11972	7.6	0.8
Total	1,229.3		1,268.1	38.8

Table 2 – Latest cash flow and provision for price adjustment due to latest project cost estimate and latest adjustment factors

Year	Latest project cost estimate (\$ million in Sept 2010 prices) (a)	Latest price adjustment factors (Sept 2010)* (b)	Latest project cost estimate (\$ million in MOD prices) (c)	Latest provision for price adjustment (\$ million) (d)	Net change in provision for price adjustment (\$ million) (e)
Up to 31 March 2011	159.6^	-	159.6	(d)=(c)-(a)	(e)=(d)-A [in Table 1]
2011 – 2012	186.3	1.04525	194.7		
2012 – 2013	740.6	1.10143	815.7		
2013 – 2014	417.5	1.16201	485.1		
2014 – 2015	50.7	1.22592	62.2#		
2015 – 2016	32.1	1.29335	41.5		
2016 – 2017	7.9	1.36448	10.8##		
Total	1,594.7		1,769.6	174.9	136.1

Note:

- † Price adjustment factors adopted in April 2007 were based on the then Government's latest assumptions on the trend rate of change in the prices of public sector building and construction output for the period 2007 to 2016.
- Ω \$1,268.1 million is the original project cost estimate which includes the approved project estimate of **8MA** of \$1,218.1 million and the contribution from CMC of \$50 million .
- * Price adjustment factors adopted in March 2011 are based on the latest movement of prices for public sector building and construction output, which are assumed to increase by 5% per annum in 2011, and by 5.5% per annum from 2012 onwards.
- ^ \$159.6 million is the actual expenditure in MOD prices up to 31 March 2011.
- # For 2014-15, the revised project cost estimate in MOD prices is \$62.15 million before rounding up.
- ## For 2016-17, the revised project cost estimate in MOD prices is \$10.78 million before rounding up.

8MA – Redevelopment of Caritas Medical Centre, phase 2

Comparison between the original project cost estimate and the latest project cost estimate

A comparison of the original project cost estimate and the latest project cost estimate is as follows –

	(A) Original project cost estimate (\$ million)	(B) Latest project cost estimate (\$ million)	(B) – (A) Difference (\$ million)
(a) Decanting and refurbishment ¹	76.1	73.0	(3.1)
(b) Demolition	31.3	54.3	23.0
(c) Substructure/piling	110.3	222.4	112.1
(d) Drainage and external works	58.9	128.9	70.0
(e) Building	365.4	489.8	124.4
(f) Building services	358.3	386.3	28.0
(g) Consultants' fees for	54.5	54.5	0.0
(i) project management & contract administration			
(ii) site supervision			
(h) Furniture and equipment ²	134.4	134.4	0.0
(i) Contingencies	40.1	51.1	11.0
(j) Provision for price adjustment	38.8	174.9	136.1
Total	1,268.1	1,769.6	501.5

¹ Works to existing facilities.

² Based on an indicative list of furniture and equipment items and their estimated prices.

2. **As regards item (a) (Decanting and refurbishment)**, the decrease of \$3.1 million is due to reduced extent of decanting arrangements for meeting operational requirements of CMC.
3. **As regards item (b) (Demolition)**, the increase of \$23.0 million takes into account the construction cost increases since mid-2007 as reflected in the contract value of Works Package I. Also, the increase has taken into account the updated cost estimate of Works Package III.
4. **As regards item (c) (Substructure/piling)**, the increase of \$112.1 million takes into account construction cost increases since mid-2007 as reflected in the contract value of Works Package I and the returned tender price of Works Package II.
5. **As regards item (d) (Drainage and external works)**, an increase of \$60 million takes into account the construction cost increases since mid-2007 as reflected in the contract value of Works Package I and the returned tender rates of Works Package II. Also, an increase of \$10 million has taken into account the updated cost estimate for Works Package III which is due to additional external works which have not been allowed for in the original estimate, including re-provision of existing hot water supply pipework affected by the project, provision of external U-trough for maintenance of water mains by the Water Supplies Department, demolition and re-provision of entrance portal, and slope improvement works.
6. **As regards item (e) (Building)**, the increase of \$124.4 million takes into account the construction cost increases since mid-2007, which is partly offset by decrease in cost for Works Package II due to the reduction in construction floor area resulting from the optimization of the area efficiency of the new ambulatory/rehabilitation block.
7. **As regards item (f) (Building services)**, the increase of \$28.0 million takes into account the construction cost increases since mid-2007, which is partly offset by decrease in cost for Works Package II due to the reduction in construction floor area resulting from the optimization of the area efficiency of the new ambulatory/rehabilitation block.
8. **As regards item (i) (Contingencies)**, the increase of \$11.0 million is to maintain a suitable budget allowance to cater for unforeseen circumstances.

9. **As regards item (j) (Provision for price adjustment)**, the increase of \$136.1 million is due to increase in projected payments for contract price fluctuation.